

CATALYST SYSTEM FOR LEAN BURN ENGINES

Abstract of Disclosure

A catalyst system to provide emission reductions under lean and stoichiometric conditions. The catalyst system comprises a forward catalyst having a first cerium-free zone including oxides of aluminum, alkali metals and alkaline earth metals and precious metals and a second zone with a lower loading of precious metals, oxides of aluminum, alkali metals or alkaline earth metals. This forward catalyst stores NO_x emissions under lean conditions for subsequent reduction and converts HC, CO and NO_x during stoichiometric operation. The second downstream catalyst includes precious metals, reduces emissions under stoichiometric conditions, and stores any residual NO_x emitted from the first catalyst for subsequent reduction. In another embodiment, a forward catalyst has top and bottom layers designed to reduce emissions under lean conditions. In this embodiment, a second downstream catalyst is used to reduce emissions under stoichiometric conditions. In yet another catalyst, multiple zones are created within a single catalyst.

Figures